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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,818	09/23/2005	Michel Baylot	33900-183PUS	1789
27799 7590 05/02/2008 COHEN, PONTANI, LIEBERMAN & PAVANE 551 FIFTH AVENUE SUITE 1210 NEW YORK, NY 10176				
EXAMINER BASINGER, SHERMAN D				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/550,818

**Applicant(s)**

BAYLOT ET AL.

**Examiner**

SHERMAN D. BASINGER

**Art Unit**

3617

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 38-74 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 49-69 is/are allowed.
- 6) ☒ Claim(s) 38-48 and 74 is/are rejected.
- 7) ☒ Claim(s) 70-73 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/883)
- Paper No(s)/Mail Date 12/26/07.
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 70-73 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim 70 depends from claim 64 in line 1 and claim 55 in line 9.

2. Claims 67 and 74 are objected to because of the following informalities: in claim 67 "is comprises" is awkward and in claim 74 "by be emptying" is also awkward.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 74 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 74 "said top emptying orifice" has no clear antecedent.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 38-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Bennett.

38. (Currently Amended) ~~The use of~~ An underwater buoyancy element, comprising: a buoyancy fluid 16 ~~presenting~~ having a density that is less than that of sea water, and that is confined in a rigid or flexible leaktight casing 14, ~~so as to constitute an immersed buoyancy element,~~ wherein said buoyancy fluid is a compound (ammonia-see column 4, lines 59 and 60) that is naturally in a gaseous state at ambient atmospheric temperature and pressure, and in an entirely liquid state at the underwater depth to which said buoyancy element is immersed.

39. (Currently Amended) The underwater buoyancy element according to claim 38, wherein said buoyancy fluid (ammonia) is naturally in the a stable liquid state when it is placed at an underwater depth of 10 m to 500 m, ~~and preferably of 20 m to 100 m.~~

40. (Currently Amended) The underwater buoyancy element according to claim 38, wherein said buoyancy fluid is a fluid that is quasi-incompressible, and that ~~presents~~ has a relative density in the liquid state of 0.3 to 0.8, ~~and preferably of 0.5 to 0.7.~~

41. (Currently Amended) The underwater buoyancy element according to claim 38, wherein said gas is selected from **ammonia**, a C-2 to C-7 alkane, a C-2 to C-7 alkene, a C-2 to C-7 alkyne, and a C-4 to C-7 diene.

42. (Currently Amended) The underwater buoyancy element according to claim 41, wherein said compound is selected from one of ~~the list-~~ **ammonia**, ethane, butane, propane, ethylene, propylene, butene, acetylene, methyl acetylene, propadiene, and butadiene.

43. (Currently Amended) A--tree The underwater buoyancy element according to claim 42, wherein said compound is selected from one of **ammonia**, propane, and butane.

44. (Currently Amended) ~ The underwater buoyancy element according to claim 38, wherein said casing 14 comprises walls defining an immersed structure, or is disposed in ~~constituted by, or is placed inside, the walls of~~ a compartment of an immersed structure.

45. (Currently Amended) The underwater buoyancy element according to claim 38, wherein said casing 14 is disposed outside and coupled to an immersed structure 10.

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46. (Currently Amended) The underwater buoyancy element according to claim 45, wherein said immersed structure is suspended from said buoyancy element by at least one cable (the electrical cables to the battery).

47. (Currently Amended) ~~A~~~~immersed~~-The underwater buoyancy element according to claim 38, wherein said buoyancy element imparts ~~imparting~~-buoyancy to an immersed structure 10 to which it is connected or secured, or in which it is integrated, said ~~buoyancy element~~ comprising a said immersed casing in which said liquefied compound is confined in ~~leaktight~~ manner in accordance with the use of claim 38.

48. (Currently Amended) ~~[[A]]~~ The underwater buoyancy element according to claim 47, further comprising a flexible casing 18 ~~preferably~~ having a hydrodynamic profile~~[[,]]~~ for minimizing forces during ~~[[its]]~~ vertical movements of the underwater buoyancy element when the underwater buoyancy element ~~[[it]]~~ is full of said buoyancy fluid ~~as defined in claim 38.~~

### ***Allowable Subject Matter***

7. Claims 49-69 are allowed.
8. Claim 74 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

### ***Response to Arguments***

Applicant's arguments filed December 26, 2007 have been fully considered but they are not persuasive. Applicant argues with respect to claims 38-48 that: The Office Action states that

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Bennett teaches all of Applicants' recited elements.  
Applicants disagree.

Independent claim 38 recites "an underwater buoyancy element, comprising: a buoyancy fluid having a density that is less than that of sea water, and that is confined in a rigid or flexible leaktight casing, wherein said buoyancy fluid is a compound that is naturally in a gaseous state at ambient atmospheric temperature and pressure, and in an entirely liquid state at the underwater depth to which said buoyancy element is immersed."

Bennett fails to teach or suggest "wherein said buoyancy fluid is a compound that is naturally in a gaseous state at ambient atmospheric temperature and pressure, and in an entirely liquid state at the underwater depth to which said buoyancy element is immersed", as recited in Applicants' claim 38.

In rebuttal, to the contrary of applicant's argument, Bennett teaches "wherein said buoyancy fluid is a compound that is naturally in a gaseous state at ambient atmospheric temperature and pressure, and in an entirely liquid state at the underwater depth to which said buoyancy element is immersed."

The limitation "a compound that is naturally in a gaseous state at ambient atmospheric temperature and pressure, and in an entirely liquid state at the underwater depth to which said buoyancy element is immersed" defines only a property of the compound of the buoyancy fluid. Ammonia has the above properties. Claim 38 states: "an underwater buoyancy element, comprising: a buoyancy fluid having a density that is less than that of sea water, and that is confined in a rigid or flexible leaktight casing, wherein said buoyancy fluid is a compound that is naturally in a gaseous state at ambient atmospheric temperature and pressure, and in an entirely liquid state at the underwater depth to which said buoyancy element is immersed." The buoyancy fluid is the ammonia. This fluid is confined in a casing 14. Claim 38 does not state that the buoyancy fluid is not combined with another fluid (not an indication of allowable subject matter).

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Bennett teaches an apparatus for controlling the depth of an object submerged in a liquid medium that includes a sealed chamber means, joined to the object, which retains a working fluid and which has a variable external volume for displacing variable amounts of the medium. The apparatus of Bennett further includes a heat transfer device for controlling the external volume of the chamber by heating the working fluid to increase the external volume, and by cooling the working fluid to decrease the external volume (see abstract of Bennett).

The working fluid (16) of Bennett always includes a gaseous component and is never entirely in a liquid state because the purpose of the apparatus taught by Bennett is to have a variable buoyancy and this variable buoyancy is obtained by heating or cooling the gas component to increase or decrease the volume of the gas component and thereby facilitate a variable volume of the chamber confining the gas component. The variable chamber of Bennett includes a wall, which is made of a flexible diaphragm (18). The movement of the diaphragm (18), which can urge outwardly from the interior of the chamber or respectively inwardly from the chamber, provides the variable volume (see col. 3, lines 15-25 of Bennett).

Specifically, Bennett teaches "control (12) includes a chamber (14) for enclosing a working fluid (16), fluid (16) being a fluid which is expandable when it is heated and contractible when it is cooled. Working fluid (16) comprises a gaseous fluid such as nitrogen or a noble gas such as argon" (see col. 2, lines 1-5 of Bennett).

Further, Bennett teaches "referring to FIG. 4, there is shown object (10) and control (12) submerged in liquid medium (28) to a depth below depth D, control (12) comprising all of the elements shown in FIGS. 1-3 except that instead of gaseous fluid (16), a two-state working fluid is employed which has a liquid component (32) and a gaseous component (34). The working fluid could comprise a single fluid which is maintained partially in a liquid state and partially in a gaseous state while object (10) is submerged. When element (20) is energized to raise object (10), the gaseous component (34) of the fluid increases and liquid component (32) thereof decreases. A two-state fluid of this type could comprise water or Freon, and may

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provide greater efficiency in the operation of control (12) than a working fluid having only a gaseous state, where efficiency is defined as being the ratio of work done to move diaphragm 18 to the heat provided by heating element (20)" (see col. 4, lines 29-46 of Bennett).

Moreover, Bennett teaches "As an alternative to a single fluid having two states, the working fluid shown in FIGS. 4 and 5 could comprise a mixture of two fluids having different boiling points, one fluid being partially dissolved in the other. For example, liquid component (32) could comprise water, and gaseous component (34) could comprise ammonia, the amount of ammonia dissolved in the water decreasing when heating element (20) is energized, and increasing when element (20) is deenergized" (see col. 4, lines 54-62 of Bennett).

In contrast to Bennett, Applicants' recited underwater buoyancy element includes a fluid that is entirely in a liquid state at the underwater depth to which the buoyancy element is immersed. Applicants are not concerned with variable buoyancy and do not require a heater mechanism to heat the buoyancy fluid.

Thus, Bennett clearly fails to teach or suggest "wherein said buoyancy fluid is a compound that is naturally in a gaseous state at ambient atmospheric temperature and pressure, and in an entirely liquid state at the underwater depth to which said buoyancy element is immersed", as recited in Applicants' claim 38.

In rebuttal again, claim 38 with respect to the buoyancy fluid only defines properties of the fluid and the fact that it is confined in a rigid or flexible leaktight casing. The ammonia used by Bennett has the defined properties of claim 38 and is confined in casing 14.

In view of the foregoing, Applicants submit that Bennett fails to teach or suggest the subject matter recited in independent claim 38. Accordingly, claim 38 is patentable over Bennett under 35 U.S.C. §102(b).

Claims 39-46, which depend from independent claim 38, incorporate all of the limitations of independent claim 38 and are therefore deemed to be patentably distinct over



Bennett for at least those reasons discussed above with respect to independent claim 38.

In rebuttal, these arguments fall as claim 38 remains anticipated by Bennett.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Berteaux et al is cited to show the use of propane and butane as the liquid 13.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **SHERMAN D. BASINGER** whose telephone number is

(571)272-6679. The examiner can normally be reached on Monday-Thursday 5:30 a.m.-3:00 p.m. and Friday 6:30 a.m.-10:30 a.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samuel J. Morano can be reached on 571-272-6684. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sherman D. Basinger/  
Primary Examiner  
Art Unit 3617

5/2/08